ATTACHMENT J.4.2

OPERABLE UNIT 4 - SUBSTANTIVE REQUIREMENTS CROSS-WALK

ATTACHMENT J.4.2
OPERABLE UNIT 4 - SUBSTANTIVE REQUIREMENTS CROSS-WALK

J.4.2.1 Introduction

The existing OU4 ROD established vitrification and the subsequent off-site disposal of Silo 3 material at the Nevada Test Site (NTS) as the selected remedy for the OU4 remedial action. The OU4 ROD also established ARARs and TBC criteria that must be followed to ensure that the OU4 remedial activities are conducted in compliance with the substantive requirements of existing federal, state, and local environmental laws and regulations.

The reexamination of the selected remedy decision for the Silo 3 material has shown that stabilized waste evaluated in the OU4 Feasibility Study met all ARARs and TBC criteria and was protective of human health and the environment. Stabilized waste would meet established WAC for an off-site disposal facility.

The ARARs and TBC criteria originally identified in the OU4 Feasibility Study for vitrification and cementation and off-site disposal at the NTS of the Silo 3 material would not be altered from the modification of the ROD.

Section 121(e)(1) of CERCLA states that no federal, state, or local permit shall be required for any removal or remedial action conducted entirely on-site, where such remedial action is selected and carried out in compliance with Section 121. Therefore, remedial design/remedial action activities involved with remediation of Silo 3 material are not required to obtain any federal, state, or local permits. However, the project must be conducted in accordance with the terms and conditions of those permits that otherwise would have been required, in accordance with the CERCLA and Section XIII.B of the Amended Consent Agreement. Tables J.4.2-1 through J.4.2-3 of this attachment provide a detailed listing of substantive requirements associated with the Silo 3 remedial action, and a format wherein a compliance strategy reflective of the design/implementation can be identified. In addition, these tables provide a cross reference index as to where, within the various remedial design/remedial action documentation (submitted by the Contractor), a discussion can be found supporting this compliance strategy. Additional ARARs and TBC criteria associated with the Silo 3 remedial action that are not related to the issuance of a specific permit, are discussed in Attachment J.4.1.

In addition to air, surface water, and groundwater monitoring requirements associated with a permit or other ARAR for remediation of OU4, existing site-wide programs that address contamination of air, surface water, and groundwater media at the FEMP site will continue to be conducted during remediation of Silo 3 material. These site-wide monitoring programs are designed to monitor ambient air conditions both on-site and at the property boundary, the concentration of contaminants in treated wastewater discharged from the AWWT to the Great Miami River, and contaminant levels within groundwater under the

site. Environmental air monitoring at the FEMP also includes continuous monitoring for radon at various site locations. These three programs are intended to identify the potential for off-site releases minimize the effects from site activities on environmental media.

J.4.2.2 Requirements Affecting Emissions to Air

Ambient air quality in areas accessible to the public is regulated by both state and federal standards under the CAA. There are three potential sources of air emissions during the remedial activities planned for Silo 3 material: 1) radon and other gaseous or particulate releases resulting from Silo 3 material removal and treatment; 2) dust from construction and earth-moving activities; and 3) heavy equipment exhaust. In addition to the federal CAA NESHAP requirements, state permit requirements, and DOE Orders that impact design and operation of air contaminant sources, the State of Ohio has several regulations that govern the control of fugitive dust and visible particulate emissions, and prohibit the operation of air pollution nuisances. Emissions of radon, and other air contaminants in the off-gases generated during waste retrieval and stabilization/solidification activities shall be controlled through collection and treatment. Measures for reducing fugitive dust emissions, such as surface wetting or using dust suppressants, shall be used in exposed soil areas as appropriate. Particulates shall be controlled by approved site standard operating procedures and the use of BAT, including off-gas control equipment during waste treatment. While not possible to control emissions from individual vehicles, emissions of vehicle exhaust shall be minimized through proper planning and scheduling of activities.

J.4.2.2.1 State Permitting Requirements

The only State of Ohio air permits that would normally be required are as follows:

- OAC 3745-31-02(A) states, ..."no person shall cause, permit, or allow the installation of a new source of air pollutants or cause, permit, or allow the modification of an air contaminant source without first obtaining a Permit to Install;" and

- OAC 3745-35-02(A) states, ..."no person may cause, permit, or allow the operation or other use of any air contaminant source without first applying for and obtaining a Permit to Operate."

Under ordinary circumstances, state PTI and PTO would be required for the proposed remedial action; however, under CERCLA, a permit is not required for activities conducted on-site as long as the requirements normally included in such a permit are met. As discussed in Section C.9, however, a Contractor implementing off-site treatment of Silo 3 material shall be responsible for obtaining and complying with all applicable federal, state, and local air permits.

The proposed remedial action must not prevent or interfere with the attainment or maintenance of pertinent ambient air quality standards; must not result in a violation of any pertinent laws; and must employ BAT to control emissions. Furthermore, the proposed remedial action must be operated in compliance with pertinent air pollution control laws; must be constructed, located, or installed in compliance with the terms and conditions of a Permit to Install; and must not violate NESHAPs adopted by the Administrator of the U.S. EPA.

J.4.2.2.2 NESHAP Requirements

The federal CAA establishes specific requirements under the NESHAP program which affect remedial design for OU4. They are: 1) emissions of radon and its daughters (40 CFR Part 61 Subpart Q) and 2) emissions of radionuclides other than radon and its daughters (40 CFR Part 61 Subpart H).

40 CFR Part 61 Subpart Q establishes a radon flux rate standard of 20 pCi/m^2⇩s during periods of storage and disposal of radium-bearing materials at DOE facilities. This requirement will govern radon control during interim storage of stabilized/solidified Silo 3 wastes on-site.

40 CFR Part 61 Subpart H sets a maximum dose rate standard for radionuclides, other than radon and its daughters, of 10 mrem/yr to any member of the public, measured as an effective dose equivalent. Radionuclide emission measurements shall be made at release points which have the potential to discharge radionuclides into the air in quantities that could cause an effective dose equivalent of 0.1 mrem/yr or emissions in excess of this standard. The potential to release radionuclides will be determined on a basis of characterization data and unit-specific design features of the off-gas treatment system. Any activity that modeling indicates has the potential to release a dose of 0.1 mrem/yr, due to radionuclides other than radon and its decay products, to an individual off-site must have a monitoring system installed at locations appropriate to quantify the release from that activity.

J.4.2.2.3 DOE Order Requirements

Parts of DOE Order 5400.5 are included in the ROD as TBC criteria, and establish standards and limits for protection of the public from radionuclides, including radon. The Order requires that potential exposures to radon be minimized through the use of ALARA principles in the design and operation of the remedial treatment facilities. These principles include the use of administrative and engineering controls, including controlled areas during remedial operations to restrict personnel access to hazardous areas.

Radon from any point source is required to be controlled so as not to cause a contribution to the fence line concentration greater than 0.5 pCi/L as an annual average. If based on

design estimates, the maximum contribution to the fence line concentration resulting from remediation activities (without taking any credit for any control equipment) would not exceed this limit, then additional control equipment and monitoring would not be required. Otherwise, proper engineering controls for the abatement of radon emissions must be incorporated into the design and operation of the remediation facility.

Release of radionuclides, including radon, from the treatment facility must be controlled to levels that are ALARA through appropriate design of off-gas control equipment, as well as through use of administrative controls. These levels must meet the DCG levels established in DOE Order 5400.5 for radionuclide, including radon, releases that may reach the public or other off-site receptors.

J.4.2.3 Requirements Affecting Discharges to Surface Water

Regulations under the CWA establish requirements for discharges to surface waters, and govern dredge and fill activities. Surface water in the area of the FEMP may be impacted during remediation of Silo 3 material by discharge of wastewater, stormwater run-off, and activities conducted in wetland areas.

The proposed remedial action may have the potential to generate wastewater which will be discharged to the FEMP AWWT facility. Generated wastewater streams could include both process wastewater and the accumulations of rainwater from diked concrete pads. It is anticipated that the selected Contractor would recycle process wastewater for use in the stabilization/solidification process to promote waste minimization. However, some wastewater generated during the stabilization/solidification process, as well as, wastewater generated during gross decontamination and dismantlement of the treatment facility may require treatment at the AWWT prior to discharge to receiving waters. Each unique wastewater stream shall be characterized to determine the appropriate means of treatment in the site AWWT facility, with the treated effluent being discharged under the existing NPDES permit. Activities shall be managed to ensure compliance with the effluent limitations for the receiving water body and permit conditions stipulated by the existing FEMP permit.

J.4.2.3.1 State Permitting Requirements

<u>Wastewater Discharges</u>

The only State of Ohio water permits that would normally be required are as follows:

> **PERMITS TO INSTALL - OAC 3745-31-02(A): Unless exempted by OAC 3745-31-03, "no person shall cause, permit, or allow the installation of a new disposal system, or cause, permit, or allow the modification of a disposal system without first obtaining a Permit to Install."**

NPDES - OAC 3745-33-02(A): No person may discharge any pollutant or cause, permit, or allow a discharge of any pollutant without applying for and obtaining an Ohio NPDES permit. The FEMP currently operates under an approved Ohio NPDES permit.

The proposed remedial actions must not prevent or interfere with the attainment or maintenance of applicable ambient water quality standards; must not result in a violation of any applicable laws; and must employ the best available technology. All discharges authorized under the NPDES permit shall be consistent with the terms and conditions of the permit. Facility expansions, production increases, or process modifications which could result in new, different or increased discharges of pollutants must be reported to FDF, and evaluated for adequacy of control prior to installation and use.

Pollutants that are likely to be encountered during remediation activities include suspended solids, heavy metals, and uranium and other radionuclides. Depending on the concentrations of the pollutants present in the wastewater, "pretreatment" may be required to facilitate final treatment in the FEMP's AWWT facility, and to ensure the requirements of the NPDES permit are met. Any pretreatment required for wastewater will incorporate best available technologies, such as installation of a filter for the removal of suspended solids.

The selected Contractor shall keep monitoring records of the volume of wastewater generated and the types and concentrations of pollutants for all wastewater streams discharged to the FEMP's AWWT facility. AWWT personnel will review analytical data collected from process wastewater and accumulated stormwater before approval for transfer to the AWWT is provided to the Contractor. The AWWT will be responsible for treating the wastewater, and establishing the discharge scheme to accomplish the goals of remediation and to ensure NPDES compliance.

An emphasis will be placed on pollution prevention during selection of the qualified vendor for remediating Silo 3 material. A pollution prevention approach requires minimization of the amount of additional chemicals introduced during remediation, and the amount of contaminated wastewater generated. Compliance with discharge limitations and design of additional pretreatment requirements, if any, will be evaluated during the selection process.

<u>Stormwater Management</u>

During remedial design, run-off control measures shall be specified to protect the storm sewer system, undisturbed land within OU4, and surrounding drainage ditches from contamination, erosion, or solids build-up. As part of the design process, the OU4 area shall be reviewed for existing drainage patterns, and the locations of all storm sewer system inlets and drainage paths to natural waterways identified to ensure appropriate

protection. All run-off control practices will be in accordance with those identified in the existing FEMP Stormwater Pollution Prevention Plan.

On completion of activities involved with remediation of the Silo 3 material, any disturbed land will be stabilized in an expedient manner. This will include removal of the Contractor's facilities down to grade, removal of contaminated soils, grading the area in accordance with existing drainage patterns, and establishing erosion controls (e.g., reseeding the disturbed area) to prevent future erosion.

All stabilized/solidified material and debris generated from facility shutdown and dismantlement activities will be properly containerized, and protected from exposure to the weather by tarps or other temporary enclosures prior to final disposition, thus reducing the potential for contamination to mix with stormwater run-off (rainfall or snowmelt).

Protection of Wetlands

Under the CWA, permits are normally required for activities that discharge material into United States waters (including wetlands). Installation of utility lines or access roads to serve the proposed stabilization/solidification facility may impact wetland areas. This activity may be accomplished under a nationwide permit granted by federal regulation for this class of activity without the need to obtain a separate permit. In addition, no person may discharge materials into wetland areas without obtaining a permit from the United States Army Corp of Engineers (ACOE). To obtain this permit, a State Water Quality Certification is required. The State of Ohio has been granted State Water Quality Certification for Nationwide Permits (NWP) #12, for utility lines, and #14 for construction of access roads. The proposed remedial action for Silo 3 material will comply with the conditions set forth in these permits to minimize any impacts on wetland areas.

Pursuant to Section 404 of the CWA a permit from the ACOE would be required prior to discharge of materials into the wetland areas. In addition pursuant to Section 401 and OAC 3745-32-02(A)(2) a State Water Quality Certification is required to obtain a Section 404 permit from the ACOE.

Activities under NWP #12 and NWP #14 are authorized provided the following terms and conditions of the permit are satisfied.

***Navigation*. The activity must not cause more than minimal effect on navigation.**

***Proper Maintenance*. Fill authorized by the NWP must be properly maintained, including maintenance to ensure public safety.**

***Erosion and Siltation Control*. Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and**

other fills must be permanently stabilized at the earliest possible date. Standards and specifications for design of erosion and sedimentation control devices can be found in the USDA-SCS Water Management and Sediment Control for Urbanized Areas Manual.

***Aquatic Life Manual*. The activity must not disrupt the movement of those species of aquatic life indigenous to the body of water (wetland) where the activity is being conducted.**

***Equipment*. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.**

***Wild and Scenic Rivers*. The activity can not occur in a component of the National Wild and Scenic River System.**

***Tribal Indian Rights*. The activity must not impair reserved tribal rights including but not limited to reserved water rights and treaty fishing and hunting rights.**

***Water Quality Certification*. A State Water Quality Certification or waiver thereof is required.**

***Endangered Species*. The activity must not jeopardize the continued existence of any threatened or endangered species or adversely affect their habitats in any manner.**

***Historic Properties*. The activity must not affect historic properties listed or eligible for listing in the National Register of Historic Places.**

***Water Supply Intakes*. The discharge of excavated material must not occur in close proximity to a public water supply intake.**

***Shellfish Production*. No discharge of material is allowed in an area of concentrated shellfish production.**

***Suitable Material*. The discharged material must be free of unsuitable materials (trash, debris, etc.) and toxic pollution in toxic amounts as per Section 307 of the CWA.**

***Mitigation*. The discharge of material must be minimized or avoided to the maximum extent practicable at the project site.**

***Spawning Areas*. Discharges in spawning areas during spawning season must be limited to the maximum extent practicable.**

***Obstruction of High Flows*. To the maximum extent practicable, discharges must not**

permanently restrict or impede the passage of normal or expected high flows or cause relocation of the water.

***Waterfowl Breeding Areas*. Discharge into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.**

***Removal of Temporary Fills*. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting contours.**

In addition, the OEPA has granted Section 401 State Water Quality Certification for NWP #12 and NWP #14. Work conducted under NWP #12 and NWP #14 need only comply with the following conditions of the Water Quality Certification to be authorized.

***Bank Stabilization*. All necessary steps shall be taken, upon completion of the project, to ensure bank stability.**

***Damages to Immediate Environment*. All damage by equipment needed for construction or hauling shall be repaired immediately.**

***Water Quality*. Care must be employed throughout the course of the project to avoid the creation of unnecessary turbidity which may degrade water quality or adversely affect aquatic life.**

***Forested Wetlands (NWP #12 Only)* NWP #12 can not be used to authorize utility lines greater than 1,000 feet in length in forested wetlands.**

J.4.2.4 Miscellaneous Requirements

The material in Silo 3 is byproduct material as defined by Section 11(e)2 of the AEA of 1954, and due to the hazard associated with the toxicity of the metals, in the Silo 3 material, the substantive requirements of RCRA are adopted as relevant and appropriate to ensure protectiveness during remedial design activities.

<u>RCRA Tank Design</u>

Design requirements for tanks are established in 40 CFR Part 264.192 (OAC 3745-55-92). Tanks systems must be designed with a material compatible with the waste to be stored or treated in the tank and have sufficient structural strength and corrosion protection to ensure it will not collapse, rupture, or fail. Tank systems must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction. In addition, design of tank systems must include spill prevention controls, such as check valves and dry disconnects, and overfill prevention controls, such as level sensing devices and automatic feed cutoff controls.

Prior to being placed in use, the tank system must be inspected and shown to be free from weld breaks, punctures, scrapes of protective coatings, cracks, corrosion, and other structural damage. In addition, tank systems must be inspected for structural stability, and tested for tightness to ensure tank and ancillary equipment will not fail under design loads.

RCRA tank systems must be provided with a secondary containment system that meets the requirements of 40 CFR Part 264.193 (OAC 3745-55-93). Secondary containment systems must be designed to be capable of detecting and collecting releases to prevent migration of wastes or accumulated liquids to the environment. The secondary containment system must be constructed of a material that is compatible with the waste to be managed and must have sufficient strength and thickness to prevent failure due to anticipated pressure gradients, climatic conditions, and daily operations. The base of the secondary containment system must also be designed to prevent failure due to settlement, compression, or uplift.

Ancillary equipment associated with tank systems must also be provided with secondary containment, unless it is visually inspected on a daily basis and consists of one or more of the following:

- **aboveground piping (exclusive of flanges, joints, valves, and other connections);**
- **welded flanges, welded joints, and welded connections;**
- **sealless or magnetic coupling pumps and sealless valves; or**
- **pressurized aboveground piping with automatic shut-off devices.**

Secondary containment must meet the following criteria:

- **contain any spills or leaks;**
- **prevent migration of any spills through the liner;**
- **be free of any cracks, joints, or other breaches;**
- **have sufficient slope to convey leaked or spilled material down to a sump area where it can be visually detected by periodic (daily) inspection; and**
- **have a system in place that allows removal of any leaked material within 24 hours.**

Treatment, Storage, or Disposal Facility Preparedness and Prevention

Treatment facilities must be designed to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste to air, soil, or surface water which could threaten human health or the environment (40 CFR Part 264 Subpart C).

Design of the remediation facility must include:

- **an internal communications or alarm system capable of providing immediate emergency instruction to personnel;**

- **a device capable of summoning assistance from emergency response personnel; and**

- **portable fire extinguishers, fire control equipment, spill control equipment, decontamination equipment, and water at adequate volume and pressure to supply fire control equipment.**

Emergency communication and alarm systems must be immediately available to all personnel during handling of waste. Finally, aisle space must be maintained to allow for unobstructed movement of personnel and emergency response equipment (i.e., fire protection, spill control) to access any area of the facility.

Use and Management of Containers

The stabilized material produced by the treatment process shall not contain any free liquids. Therefore, the container storage area will only be required to be designed to drain and remove liquids resulting from precipitation, and to prevent containers from coming in contact with accumulated liquid (40 CFR Part 264 Subpart I).

Waste Characterization

As previously mentioned, the Silo 3 material is excluded from RCRA regulation as hazardous waste by definition. Moreover, no hazardous waste is anticipated to be produced in the remediation process, whether during site preparation and construction, operation, or facility shutdown and dismantlement. However, all wastes shall be subject to characterization. If the waste characterization indicates any waste material is a hazardous waste, the material would be subject to the substantive requirements for the management storage, and final disposition under RCRA (40 CFR Part 264 Subpart G).

(END OF PAGE)

Table J.4.2-1 Substantive Requirements for Air Contaminant Sources

Citation	Substantive Permitting Requirements	Requirements Assessment	Compliance Strategy	Cross Reference Index
Radionuclide Emissions (Except Airborne Radon-222) 40 CFR Part 61 Subpart H	Emissions of radionuclides to the ambient air from DOE facilities shall not exceed those amounts that might cause any member of the public to receive in any year an EDE of 10 mrem per year. Monitoring is required at release points having potential to discharge radionuclides which could cause an EDE in excess of 1% of the standard (0.1 mrem/yr) to any member of the public.	This requirement is applicable to remediation of Silo 3 material. Radioactive materials within Silo 3 might contribute to the dose to members of the public from the air pathway during implementation of remedial actions.		
Radon-222 Emissions 40 CFR Part 61 Subpart Q	No source at a DOE facility shall emit more than 20 pCi/m^{2}Cs of radon-222 as an average for the entire source during periods of storage and disposal.	This requirement is applicable only to storage and disposal of radium-bearing byproduct material, such as Silo 3 material. Storage facilities for untreated Silo 3 material or stabilized wastes might qualify as sources.		
Permits to Install (PTI) New Sources of Emissions OAC 3745-31-05(A)(3)	The Director shall issue a Permit to Install if he determines that the installation or modification and operation of an air contaminant will: • Not prevent or interfere with the attainment or maintenance of applicable ambient air quality standards; • Not result in a violation of any applicable air pollution control laws; and • Employ best available technology (BAT) to control emissions.	Point sources must not interfere with the attainment or maintenance of any air quality standards or cause a violation of any air control laws. BAT must be used on all point sources. OEPA may also require stack performance testing to evaluate controls.		
Particulate Matter Standards OAC 3745-17-07	Visible particulate emissions from any stack may exceed twenty percent opacity, as a six minute average, for not more than six consecutive minutes in any sixty minutes, but shall not exceed sixty percent opacity, as a six minute average, at any time.	No person shall cause or permit any source of particulate emissions to be operated; or any materials to be handled, transported, or stored; or a building or its appurtenances or a road to be used, without taking or installing reasonably available control measures to prevent particulates from becoming airborne.		

Table J.4.2-1 Substantive Requirements for Air Contaminant Sources (cont'd)

Citation	Substantive Permitting Requirements	Requirements Assessment	Compliance Strategy	Cross Reference Index
Ohio EPA Air Toxics Policy (used in conjunction with OAC 3745-31-05(A) (3))	The current PTI regulations provide the Director of OEPA with a mechanism to require the evaluation of toxic air contaminants from new sources. The OEPA Air Toxics Policy provides a mechanism for calculating the Maximum Acceptable Ground-Level Concentration for a toxic substance. This value at the site boundary will be modeled to the stack to determine a stack limit. All toxic compounds that will exceed the stack limit shall be controlled administratively or by BAT to lower emissions to below the calculated stack limit.	For toxic compound emissions that are calculated to exceed the established stack limit, administrative controls shall be implemented or emissions shall be controlled by implementing BAT for toxic emissions. Performance of these control measures may be verified through performance testing during operation.		
Control of Fugitive Dust OAC 3745-17-08 .	Requires the minimization or elimination of visible emissions of fugitive dust generated during grading, loading, or construction operations and other practices which emit fugitive dust.	The implementation of remedial action alternatives may require the movement of dirt and other material likely to result in fugitive dust emissions. This requirement is relevant and appropriate because the FEMP is not located in an area identified is Appendix A of OAC 3745-17-08 that is subject to this regulation.		
Prevention of Air Pollution Nuisance ORC 3704.01 - .05 OAC 3745-15-07	Measures shall be taken to adopt and maintain a program for the prevention, control, and abatement of air pollution in order to protect and enhance the quality of the state's air resource so as to promote the public health, welfare, and economic vitality of the people of the state. The emission or escape into open air from any source whatsoever of smoke, ashes, dust, dirt, grime, acids, fumes, gases, vapors, odors, and combinations of the above in such a manner or in such amounts as to endanger the health, safety, or welfare of the public or to cause unreasonable injury or damage to property shall be declared a public nuisance and is prohibited.	This requirement is applicable to remediation activities involving Silo 3 material. During the remediation process some potential exists for emissions of radionuclides and toxic chemicals to the air, which might endanger individuals or damage property.		

Table J.4.2-1 Substantive Requirements for Air Contaminant Sources (cont'd)

Citation	Substantive Permitting Requirements	Requirements Assessment	Compliance Strategy	Cross Reference Index
Restrictions on Particulate Emissions from Industrial Processes OAC 3745-17-11	This requirement establishes numerical emission release limits for particulate material from industrial sources. Any source (operation, process, or activity) shall be operated so that particulate emissions do not exceed allowable emission rates specified in this regulation (based on processing weights [Table 1] or uncontrolled mass rate of emissions [Figure II]). A source complies with Table 1 requirements if its rate of particulate emission is always equal to or less than the allowable rate of particulate emission based on the maximum capacity of the source: Process Rate at Maximum Capacity (lb/hr) / Allowable Rate of Particulate Emission (lb/hr)[1] 100 / 0.551 200 / 0.877 400 / 1.40 600 / 1.83 800 / 2.22 1000 / 2.58 [1]Excerpted from Table 1 of OAC 3745-17-11	This requirement is applicable to remediation activities involving Silo 3 material. Treatment operations for various alternatives might result in release of particulate material which might exceed these standards.		

Table J.4.2-2 Substantive Requirements for Wastewater, Stormwater and Wetlands

Citation	Substantive Permitting Requirements	Requirements Assessment	Compliance Strategy	Cross Reference Index
Nationwide Permit Program 33 CFR Part 330	The U.S. Corps of Engineers can issue a Nationwide Permit (NWP) as a general permit for certain classes of actions that involve dredge or fill activities in wetlands or navigable waters. Discharges of dredged or fill material into wetlands may require a wetland delineation.	Remediation activities may require construction of access roads and utility lines resulting in minor wetland disturbances. All dredge and fill activities related to construction of these access roads and utility lines must be conducted in accordance with the substantive terms and conditions of NWP 14 (Road Crossing) and NWP 12 (Utility Line Backfill and Bedding). OEPA has been granted Section 401 State Water Quality Certification for NWPs 12 and 14.		
Discharge of Storm Water Runoff 40 CFR Part 122.65 OAC 3745-38	Storm water runoff from landfills, construction sites, and industrial activities must be monitored and controlled. A Stormwater Pollution Prevention Plan (SWPPP) is required for construction activities which result in a total land disturbance of 5 or more acres.	The FEMP has developed a SWPPP that applies to all activities conducted at the FEMP. The Contractor shall comply with the provisions in the SWPPP.		
Discharge of Treatment System Effluent 40 CFR Part 125.100 & 40 CFR Part 125.104	<u>Best Management Practices (BMP)</u> Develop and implement a BMP program to prevent the release of toxic or hazardous pollutants to waters of the U.S. Development and implementation of a sitewide BMP Program is also required as a condition of the FEMP NPDES Permit. The BMP program must: • Establish specific objectives for the control of toxic and hazardous pollutants • Include a prediction of direction, rate of flow, and total quantity of toxic and hazardous pollutants where experience indicates a reasonable potential for equipment failure.	Silo 3 activities have the potential for releases of toxic or hazardous pollutants in runoff. The BMP program is relevant and appropriate to prevent releases from spills or runoff during implementation of remedial actions. The current FEMP NPDES permit does not contain a BMP Plan requirement. BMP requirements have been superceded by the SWPPP. The Contractor shall comply with the provisions in the SWPPP.		

Table J.4.2-2 Substantive Requirements for Wastewater, Stormwater and Wetlands (cont'd)

Citation	Substantive Permitting Requirements	Requirements Assessment	Compliance Strategy	Cross Reference Index
Radiation Protection of the Public and the Environment from Radionuclide Release to Waters DOE Order 5400.5 Chap. III (proposed 10 CFR Part 834)	Residual concentrations of radionuclides in water that may be ingested are listed below. These derived concentration guides (DCGs) for the constituents of concern (COCs) are based on a committed effective dose equivalent (CEDE) of 100 mrem/yr, assuming ingestion of 2 liters/day. Note that these DCGs apply only if ingestion is the single pathway of exposure. Isotope — Ingested Water DCGs (µCi/mL) Actinium-227: $1x10^{-8}$ Lead-210: $3x10^{-8}$ Polonium-210: $8x10^{-8}$ Protactinium-231: $1x10^{-8}$ Radium-224: $4x10^{-7}$ Radium-226: $1x10^{-7}$ Radium-228: $1x10^{-7}$ Technetium-99: $1x10^{-4}$ Strontium-90: $1x10^{-6}$ Thorium-228: $4x10^{-7}$ Thorium-230: $3x10^{-7}$ Thorium-232: $5x10^{-8}$ Uranium-234: $5x10^{-7}$ Uranium-235: $6x10^{-7}$ Uranium-236: $5x10^{-7}$ Uranium-238: $6x10^{-7}$	DOE Orders are identified as TBCs only when no promulgated ARARs exist, to ensure the adequate protection of human health and the environment. Portions of DOE Order 5400.5 were selected as TBCs to ensure adequate protection of the public during and following remediation. Remediation of Silo 3 material has the potential to release radionuclides contained in the waste materials to environmental media via wastewater or stormwater.		

Table J.4.2-2 Substantive Requirements for Wastewater, Stormwater and Wetlands (cont'd)

Citation	Substantive Permitting Requirements	Requirements Assessment	Compliance Strategy	Cross Reference Index
Ohio Water Quality Standards Use Designation and Criteria OAC 3745-1-07	All pollutants or combinations of pollutants shall not exceed, outside the mixing zone, the Numerical and Narrative Criteria for Aquatic Life Habitat and Water Supply Use Designation listed in Tables 7-1 through 7-15 of this rule. The following COCs for OU4 have warm water habitat criteria concentrations outside the mixing zone as follows: Constituent — Criteria conc.[a] (µg/L) — 30-day average conc. (µg/L) Antimony: 650 / 190 Arsenic: 360 / 190 Beryllium: Tab. 7-10[b] / Tab. 7-11[c] Cadmium: Tab. 7-10 / Tab. 7-11 Chromium: Tab. 7-10 / Tab. 7-11 Copper: Tab. 7-10 / Tab. 7-11 Cyanide: 46 / 12 Lead: Tab. 7-10 / Tab. 7-11 Mercury: 1.1 / 0.20 Nickel: Tab. 7-10 / Tab. 7-11 Selenium: 20 / 5.0 Silver: Tab. 7-10 / 1.3 Thallium: 71 / 16 Zinc: Tab. 7-10 / Tab. 7-11 2-Butanone: 160,000 / 7,100 4-Nitrophenol: 790 / 35 Acetone: 550,000 / 78,000 Aldrin: ---- / 0.01 bis(2-ethylhexyl)phthalate: 1,100 / 8.4 Carbon tetrachloride: 1,800 / 280 DDT: ---- / 0.001 Dieldrin: ---- / 0.005 di-n-butyl phthalate: 350 / 190 Diethylphthalate: 2,600 / 120 Dimethylphthalate: 1,700 / 73 Endosulfan[d]: ---- / 0.003 Endrin: ---- / 0.002 Fluoranthrene: 200 / 8.9 Methylene chloride: 9,700 / 430 PCBs: ---- / 0.001	This requirement is applicable to remediation activities involving Silo 3 material. Paddys Run and the stream segment of the Great Miami River adjacent to the FEMP are designated as warm water aquatic life habitats with use designations of agricultural and industrial water supply, and primary contact recreation. Chemical contaminants within Silo 3 might be released during remediation such that they might contribute to contamination in these aquatic habitats. OAC 3745-1-21 (Water Use Designation for the Great Miami River) establishes the classification of the receiving waters for the FEMP.		

Table J.4.2-2 Substantive Requirements for Wastewater, Stormwater and Wetlands (cont'd)

Citation	Substantive Permitting Requirements	Requirements Assessment	Compliance Strategy	Cross Reference Index
Ohio Water Quality Standards Use Designation and Criteria (continued)	[a]Criteria concentration shall be met outside the mixing zone. [b]Criteria concentration based on hardness of water. See Table 7-10 for calculation to determine maximum concentration outside the mixing zone. [c]30-day average criteria based on hardness of water. See Table 7-11 for calculation to determine allowable 30-day average concentration outside the mixing zone. [d]No designation was made as to whether endosulfan referred to endosulfan I or endosulfan II or the sum total of each. The remaining COCs for OU4 will have criteria concentration levels based on calculated acute aquatic criteria (AAC), or chronic aquatic criteria (CAC).			
Ohio Water Quality Standards "Five Freedoms" for surface water OAC 3745-1-04	All surface waters of the state shall be free from: ● objectionable suspended solids ● floating debris, oil, and scum ● materials that create a nuisance ● toxic, harmful or lethal substances ● nutrients that create nuisance growth	This requirement is relevant and appropriate to remediation activities involving Silo 3 material. This requirement pertains to both discharges to surface waters as a result of remediation and any on-site surface waters affected by site conditions.		
OEPA NPDES Permit No. 1I000004ED	Wastewater associated with remediation of the Silo 3 wastes must be treated if necesssary to ensure compliance with the terms and conditions of the FEMP NPDES permit. DOE is required to notify OEPA of any activities or changes at the site which have the potential to significantly alter the character of the wastewater streams being discharged under its existing NPDES permit. A NPDES permit modification is required if the discharge is deemed significant enough to cause a change in the character of the wastewater stream. The existing NPDES permit must also be modified to reflect the addition of any new point source discharges of process wastewaters and stormwaters.	Wastewater must be eliminated, recycled, or minimized during the remediation of Silo 3 material to the extent practicable. Wastewater discharges associated with remediation of the Silo 3 material must be pretreated, if required, to ensure compliance with NPDES permit requirements. The existing NPDES permit will be modified and/or renewed, as necessary, to reflect process wastewater discharges.		

Table J.4.2-3 Substantive Requirements Under RCRA

Citation	Substantive Permitting Requirement	Requirement Assessment	Compliance Strategy	Cross Reference Index
Hazardous Waste Determinations 40 CFR Part 262.11 OAC 3745-52-11	Any generator of waste must determine whether or not the waste is hazardous. The procedures to be followed include: • To identify whether a particular material of concern is a "solid waste" • To identify whether a particular exclusion applies to the material eliminating it from definition as a "solid waste" • To identify whether a particular solid waste might be classified as a hazardous waste • To determine if a material otherwise classified as a "hazardous waste" might be excluded from RCRA regulation	These procedures are established to determine whether wastes are subject to the requirements of RCRA. These procedures are relevant and appropriate to determine whether OU4 wastes, whether excluded or not, exhibit the characteristics of hazardous waste or otherwise require management under RCRA. The Silo 3 material is sufficiently similar to hazardous wastes based on the TCLP results. Wastes such as debris generated during decontamination will also require a hazardous waste determination to be made.		
Empty Containers 40 CFR Part 261.7 OAC 3745-51-7	Containers that have held hazardous wastes are "empty" and exempt from further RCRA regulations if one or more of the of the following are met: • No more than 2.5 cm (1 inch) of residue remains on bottom of inner liner. • Less than 3% by weight of total capacity remains (less than or equal to 110 gallon container), • Less than 0.3% by weight of total capacity remains (greater than 110 gallon container) Containers that have held acutely hazardous ("P" listed) wastes are "empty" and exempt from further RCRA regulation if: • They or their inner liners have been triple rinsed with an adequate solvent or the inner liner has been removed from the container.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.) Containers used to treat or store the contents of Silo 3 might contain wastes which exhibit a hazardous waste characteristics which must be removed before the containers can be reused or disposed.		

Table J.4.2-3 Substantive Requirements Under RCRA (cont'd)

Citation	Substantive Permitting Requirement	Requirement Assessment	Compliance Strategy	Cross Reference Index
Generators Who Transport Hazardous Waste for Off-site Treatment, Storage, or Disposal 40 CFR Part 262.20 - 262.33 and 263.20 - 263.31 OAC 3745-52-20 through 33 and OAC 3745-53-20 through 31	Any generator who transports hazardous waste for off-site treatment, storage or disposal must originate and follow-up the manifest for off-site shipments.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. Treated Silo 3 wastes must be transported in accordance with the communication, emergency response, and training requirements under 49 CFR Part 172 and packaging requirements under 49 CFR 173. In addition, any wastes determined to be RCRA hazardous waste removed from this operable unit for off-site treatment, storage, or disposal will be subject to the manifest requirement.		
Treatment, Storage, or Disposal Facility Standards 40 CFR Part 264 Subpart B OAC 3745-54-13 through 16	General Standards • Waste Analysis - OAC 3745-54-13 Operators of a facility must obtain a detailed chemical and physical analysis of a representative sample of each hazardous waste to be treated, stored, or disposed of at the facility prior to treatment, storage, or disposal. • Security - OAC 3745-54-14 Operators of a facility must prevent the unknowing or unauthorized entry of persons or livestock into the active portions of the facility, maintain a 24-hour surveillance system, or surround the facility with a controlled access barrier and maintain appropriate warning signs at facility approaches. • Inspections - OAC 3745-54-15 Operators of a facility must develop a schedule and regularly inspect monitoring equipment, safety and emergency equipment, security devices and operating and structural equipment that are important to preventing, detecting or responding to environmental or human health hazards, promptly or immediately remedy defects, and maintain an inspection log. • Training - OAC 3745-54-16 Operators must train personnel within 6 months of their assumption of duties at a facility in hazardous waste management procedures relevant to their positions including emergency response training.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.) Wastes, which exhibit a characteristic similar to RCRA hazardous waste, removed from this operable unit might be treated, stored, and disposed in accordance with TSD facility standards.		

Table J.4.2-3 Substantive Requirements Under RCRA (cont'd)

Citation	Substantive Permitting Requirement	Requirement Assessment	Compliance Strategy	Cross Reference Index
Treatment, Storage, or Disposal Facility Preparedness and Prevention 40 CFR Part 264 Subpart C OAC 3745-54-31 through 35 and OAC 3745-54-17	OAC 3745-54-31 - Treatment, storage, or disposal (TSD) facility operators must design, construct, maintain, and operate facilities to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste to air, soil, or surface water which might threaten human health or the environment. OAC 3745-54-32 - All facilities must be equipped with an internal communication or alarm system, a telephone, or a two-way radio for calling outside emergency assistance, fire control, spill control, and decontamination equipment and water at an adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems. OAC 3745-54-33 - All fire protection and spill control and decontamination equipment and communication and alarm systems must be tested and maintained as necessary to assure proper emergency operation. OAC 3745-54-34 - All personnel must have immediate access to emergency communication or alarm systems whenever hazardous waste is being handled at the facility. OAC 3745-54-35 - Aisle space must be sufficient to allow unobstructed movement of personnel, fire and spill control, and decontamination equipment. OAC 3745-54-37 - Operators must attempt to make arrangements, appropriate to the waste handled, for emergency response by local and state fire, police and medical personnel.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.) Wastes removed from this operable unit might be treated, stored, or disposed in accordance with TSD facility standards.		

Table J.4.2-3 Substantive Requirements Under RCRA (cont'd)

Citation	Substantive Permitting Requirement	Requirement Assessment	Compliance Strategy	Cross Reference Index
Treatment, Storage, or Disposal Facility Contingency Plan and Emergency Procedures 40 CFR Part 264 Subpart D OAC 3745-54-51 through 52 and OAC 3745-54-55 through 56	OAC 3745-54-51 - Each facility operator must have a contingency plan designed to minimize hazards to human health or the environment due to fires, explosions, or any unplanned releases of hazardous waste constituents to the air, soil, or surface/groundwater. OAC 3745-54-52 - Contingency plans should address procedures to implement a response to incidents involving hazardous waste, and provide for internal and external communications, arrangements with local emergency authorities, and emergency coordinator list, a facility emergency equipment list indicating equipment descriptions and locations, and a facility personnel evacuation plan. OAC 3745-54-55 through 56 - Each facility must have an emergency coordinator who has responsibility for coordinating all emergency response measures, is on the premises or on call at all times, is thoroughly familiar with all aspects of the contingency plan, facility operations, location and characteristics of waste handled, location of pertinent records, and facility layout, and who has the authority to commit the resources necessary to implement the contingency plan in the event of an emergency.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.) Wastes removed from this operable unit might be treated, stored, or disposed in accordance with TSD facility standards.		
Closure 40 CFR Part 264 Subpart G OAC 3745-55-11, 3745-55-14, and 3745-55-16	Operators must close the facility in a manner that: • Minimizes the need for further maintenance • Minimizes post-closure escape of hazardous constituents • Complies with specific unit type closure requirements All contaminated equipment, structures and soils must be properly disposed or decontaminated. Following closure, a survey plot showing the location of hazardous waste disposal units with respect to surveyed benchmarks must be filed with the legal total zoning authority.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. The Contractor's facility lmust be clean closed, else media remediation to meet closure performance standards. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.)		

Table J.4.2-3 Substantive Requirements Under RCRA (cont'd)

Citation	Substantive Permitting Requirement	Requirement Assessment	Compliance Strategy	Cross Reference Index
Container Storage 40 CFR Part 264 Subpart I OAC 3745-55-71 through 78	Containers of RCRA hazardous waste must be: • Maintained in good condition • Compatible with hazardous waste to be stored • Closed during storage (except to add or remove waste) • Managed in a manner that will not cause the container to rupture or leak Storage areas must be inspected weekly for leaking and deteriorated containers and containment systems. Place containers on a sloped, crack-free base, and protect from contact with accumulated liquid. Provide a containment system with a capacity of 10 percent of the volume of the largest container of free liquids. Remove spilled or leaked waste in a timely manner to prevent overflow of the containment system. Keep incompatible materials separate. Separate incompatible materials stored near each other by a dike or other barrier. At closure, remove all hazardous waste and residue from the containment system, and decontaminate or remove all containers, liners, bases, and soils.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.) These requirements are relevant and appropriate for alternatives utilizing containers for temporary storage or storage before disposal.		

Table J.4.2-3 Substantive Requirements Under RCRA (cont'd)

Citation	Substantive Permitting Requirement	Requirement Assessment	Compliance Strategy	Cross Reference Index
Tank Systems 40 CFR Part Subpart J OAC 3745-55-91 through 96	Design, operating standards, and inspection requirements for tank units within which hazardous waste is stored or treated. • Tank design must be compatible with the material being stored. • Tank must be designed and have sufficient strength to store or treat waste to ensure it will not rupture or collapse. • Tank must have secondary containment that is capable of detecting and collecting releases to prevent migration of wastes or accumulated liquids to the environment.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.) Design criteria, operating standards, and inspections for tank treatment units might be relevant and appropriate for alternatives utilizing treatment or storage in a tank prior to disposal.		
Closure Requirements for Tanks	40 CFR § 264.197 OAC 3745-55-97 At closure, the facility owner must do the following: • Remove all waste residues • Remove or decontaminate all tank system components • Remove or decontaminate all contaminated soils and structures • Manage all of the above as hazardous wastes • If all contaminated soils cannot be removed, the landfill requirements of 40 CFR § 264.310 apply.	Silo 3 is a tank, according to the definition of 40 CFR Part 264.10, which contains waste sufficiently similar to hazardous waste. These standards pertain to closure of any tanks and appurtances used to store or treat Silo 3 material during remediation. These requirements are relevant and appropriate because the circumstances and wastes subject to potential release are similar to those RCRA is designed to address.		

Table J.4.2-3 Substantive Requirements Under RCRA (cont'd)

Citation	Substantive Permitting Requirement	Requirement Assessment	Compliance Strategy	Cross Reference Index
Miscellaneous Units 40 CFR Part 264 Subpart X OAC 3745-57-91 through 92	Environmental performance standard, monitoring, inspection, and post-closure care for treatment in miscellaneous units as defined in 40 CFR § 260.10.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.) Miscellaneous units might be utilized under various alternatives to remediate waste that is sufficiently similar to hazardous waste.		
Corrective Action for SWMUs 40 CFR Part 264 Subpart S 40 CFR Part 264.552, . 553	Corrective Action Management Units might be designated at the site as areas where remediation wastes (solid, hazardous, or contaminated media and debris) might be placed during the process of remediation. Temporary units consisting of tanks and container storage units might be used to store and treat hazardous waste during the process of corrective action.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.) During the process of remediation, materials might require temporary management for the purpose of staging or treating the material. Some of the material might exhibit a RCRA characteristic, or otherwise be sufficiently similar to hazardous waste to make this requirement relevant and appropriate.		

Table J.4.2-3 Substantive Requirements Under RCRA (cont'd)

Citation	Substantive Permitting Requirement	Requirement Assessment	Compliance Strategy	Cross Reference Index
Containment Buildings 40 CFR Part 264 Subpart DD	Hazardous waste and debris might be placed in units known as containment buildings for the purpose of interim storage or treatment. Containment buildings must be fully enclosed to prevent exposure to the elements and ensure containment of managed wastes. Floor and containment walls must be designed and constructed of materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the operable unit. All surfaces coming in contact with hazardous waste must be chemically compatible with the waste. Primary barriers must be constructed to prevent migration of hazardous constituents into the barrier. Secondary containment systems including secondary barrier and leak detection systems must also be constructed for containment buildings used to manage wastes containing free liquids. Controls must be implemented to ensure: the primary barrier is free of significant cracks, corrosion, or other deterioration that may allow release of hazardous waste; the level of hazardous waste does not exceed height of containment walls and is otherwise maintained within containment walls; tracking of waste out of unit by personnel or equipment used in handling waste is prevented, and fugitive dust emissions are controlled at level of no visible emissions.	The material in Silo 3 is specifically exempt from the applicability of RCRA requirements. However, these procedures are relevant and appropriate since the material stored in Silo 3 is sufficiently similar to hazardous wastes based on TCLP results. (This requirement will be applicable to non-excluded solid waste that exhibit a hazardous characteristic.) During the process of remediation, materials might require temporary management for the purpose of staging or treating the material. Some of the material might exhibit a RCRA characteristic, or otherwise be sufficiently similar to hazardous waste to make this requirement relevant and appropriate.		